TIERRA SOLUTIONS, INC.SM

Transmitted Via Electronic Mail & Federal Express

March 10, 2017

Ms. Elizabeth Butler
Remedial Project Manager
U.S. Environmental Protection Agency
Emergency and Remedial Response Division
290 Broadway, 19th Floor
New York, NY 10007-1866

Re: Remedy Evaluation Report- Response to EPA Comments
Diamond Alkali Superfund Site, Operable Unit 1
Newark, New Jersey
Consent Decree Civil Action No 89-5064

Dear Ms. Butler:

In accordance with Section VIII of the Consent Decree Civil Action No. 89-5064, Tierra Solutions Inc. (Tierra) hereby submits one electronic and one paper copy of the *Remedy Evaluation Report, Response to Comments, Final Rev. 0, March 2017* (RTC), for Operable Unit 1 of the Diamond Alkali Superfund Site located in Newark, New Jersey. The RTC document identifies Tierra's responses to USEPA comments on the Remedy Evaluation Report received on January 19th, 2017.

Tierra is seeking approval of said RTC, at which time revisions to the *Remedy Evaluation Report, Final Rev. 0, November 2015* will be prepared and submitted to USEPA for approval.

Please contact me at (732) 246-5920 with any questions.

Sincerely,

Brian Mikucki
Project Coordinator
On behalf of Occidental Chemical Corporation
(as successor to Diamond Shamrock Chemicals Company)

Enclosures

Two Tower Center Blvd. 10th Floor
East Brunswick, NJ 08816

Cc: Enrique Castro, Tierra Solutions, Inc.
Frances Zizila, United States Environmental Protection Agency, Attorney
Jay Nickerson, New Jersey Department of Environmental Protection
Juan Somoano, Glenn Springs Holdings, Inc.

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1	General	Just a reminder to double–side print all letters and reports.	Comment noted.
2	Section 1 (page 1-2)	Delete “plan” after “remedial action”.	"Plan" will be deleted after "remedial action". In addition, a description of OU-1 as defined in the Site Record of Decision (ROD) will be added to the introduction section as follows: “Per the Record of Decision, the remedy selected to address contamination present at the 80 and 120 Lister Avenue properties has a limited scope and is not intended to address all contamination related to the site. Contamination related to the site that may be present at adjacent areas (i.e., the Passaic River and aquifer(s) below the silt unit) were not considered in the Site Evaluation and Feasibility Study completed to select a remedy for this Operable Unit and are therefore outside the scope of this RE Report.”
3	Sections 1.1 (page 1-2), 2.2 (pages 2-2 to 2-4) and 2.3 (page 2-4)	As noted in Section 2.2 of the Remedy Evaluation Work Plan, EPA had completed three Five-Year Reviews and the fourth was underway. At this time, the fourth has now been completed as well. Therefore, EPA leads the effort towards determining the first evaluation criteria from the CD, namely, the protectiveness determination. This should be clearly stated throughout the report.	The first sentence of Section 1.1 will be revised as follows: "The purpose of this RER is to assess the Remedy implemented at the site in support of EPA's Five-Year Review process and to provide an assessment of the aforementioned Remedy by addressing the following evaluation criteria provided in the Consent Decree:”

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			The following will be added to the first sentence of Section 2.2: "In support of EPA's Five-Year Review process, the effectiveness and protectiveness of the current Remedy was evaluated..." Section 2.3 will be revised as follows: "Determination of overall protection of human health and the environment has been evaluated by EPA in the 5 Five-Year Reviews completed since the Remedy was implemented. In the Five-Year Reviews, EPA concluded that the current remedy protects human health and the environment from exposures to COCs contained within the properties at 80/120 Lister Avenue as long as exposure pathways continue to be addressed by engineering and institutional controls. Table (Table # TBD) provides the protectiveness statement included in each of the Five-Year Review Reports."
4	Section 1.2.2 (page 1-5)	The text at the top of the page would benefit from identification of the types of dioxins found e.g., which congeners were found.	A table (Table # TBD) will be added to the report identifying the dioxin congeners detected at the site in the 2015 EPA forensic investigation. A sentence will be added to this section referencing the table.

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5	Section 1.2.3 (page 1-5)	Historic fill does exist in the region and, by its nature, is often contaminated by metals and other contaminants commonly found in demolition debris and historical, urban-related, solid waste-like materials. However, the second sentence is misleading because it implies that dioxin and VOCs are common constituents of historic fill throughout this region. This statement must be modified to remove the terms dioxin and VOCs, unless documentation can be provided to show that these contaminant groups exist at levels of concern in historic fill in the region. Additionally, the presence of dioxin and VOCs in any fill at the Lister Site is the result of substantial hazardous substance discharges from chemical production activities on the Lister Site. As such, any fill material within the Lister Site cannot be considered historic fill, since material cannot contain any material that is substantially chemical production waste - see N.J.S.A. 58:10B-12.h.(1)*. [*Note: "Historic fill material does not include any material that is substantially chromate chemical production waste or any other chemical production waste or waste from processing of metal or mineral ores residues, slag or tailings."]	Section 1.2.3 will be revised as follows: "The following summarizes the nature and extent of constituents of concern (COCs) in surface soil, subsurface soil, and groundwater present at the Site." In addition, Section 1.2.3.3 will be revised as follows: "Due to the long industrial history of the area surrounding the Site, dioxin, volatile organic compounds (VOCs), metals, and other COC impacts are considered widespread and common to the fill unit in the vicinity of the Site. Site soil addressed under OU-1 consists primarily of fill imported over natural fluvial deposits. This fill unit is located within the regional historic fill as documented on the NJDEP Quadrangle map (Historic Fill of the Elizabeth Quadrangle HFM-52). Historic fill is likely to contain constituents, such as PAHs and metals, at concentration greater than applicable soil remediation standards, in addition to site COCs. This fill unit was characterized in various sampling programs during the remedial investigation (RI)/FS completed in the 1980s and 1990s. This fill unit soil is currently encapsulated (as part of the Remedy at the Site) via a capping system and hydraulic barrier."

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6	Sections 1.2.3.1 and 1.2.3.2 (pages 1-5 to 1-7)	a. Revise and shorten these sections because too much emphasis is placed on possible off-site sources of contamination and area-wide contamination. Although other sources of contamination exist in the area, the appropriate focus should be on continued control and remediation of the existing chemical sources and related soil and groundwater contamination directly associated with OU-1. This information is necessary for evaluating improved site control methods, along with development of more permanent remedial actions, to address soil and groundwater contamination associated with OU-1. b. The text on page 1-5 should clarify that the DNAPL observed in 2009 in two extraction wells was inadvertently discovered, and there has been no discrete investigation conducted to find DNAPL. The existing extraction wells, monitoring wells and piezometers may not be screened at depths optimal for DNAPL detection. Furthermore, the fact that DNAPL was not reported during construction of the floodwall or other remedial actions at the Lister Site might be because there was no need to look for DNAPL given the nature of the work.	a. This section will be shortened to focus on soil and groundwater contamination directly associated with OU-1, which consists of the fill unit soil above the silt unit. b. The subject text in section 1.2.3.1 will be revised as follows: "Potential onsite sources are contained within the fill unit of the Site. Soil and debris contaminated by the former manufacturing operations at the Site (currently contained by the slurry wall and surficial cap) are considered to be the primary source of dioxins and other COCs. A high-viscosity dense non-aqueous phase liquid (DNAPL) was observed during extraction well maintenance activities in 2009 in two fill unit extraction wells, EW-2 and EW-4, located along the floodwall. The DNAPL was manually evacuated from the wells. DNAPL was not observed in other extraction wells and is not observed in monitoring wells currently monitored at the time of groundwater quality sampling."
7	Section 1.2.6 (page 1-8)	Supplement this section by briefly describing the waste volume involved, the manner in which these wastes were treated prior to disposal (i.e., either permanent treatment with post-treatment leach testing, or liquid absorption only) and the location where they were placed (in cell A).	Section 1.2.6 will be revised as follows: "The contents of 692 drums (stored on steel racks inside the warehouse building) and residuals from the cleanout of three vertical aboveground storage tanks (located on the 80 Lister Avenue property) were stabilized and immobilized using either Portland

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			cement, kiln dust, and/or hydrated lime in preparation for placement under the onsite surficial cap. Each batch of stabilized or absorbed material was tested for leaching after treatment. Said materials were placed in bulk bags, the emptied drums were crushed, and the materials were set aside for subsequent placement beneath the onsite surficial cap. Bulk bags were placed in either Area A (dioxin concentrations greater than 200 ppb) or Area B (dioxin concentrations less than 200 ppb). Emptied drums were crushed and placed in Areas A or B based on the dioxin concentration of their former contents (BBL 2004). Based on the number of drums, up to 200 cubic yards of drum content and crushed drums have been placed under the cap."
8	Section 1.2.9 (page 1-9)	Please add the depth of the slurry wall to the text.	The following sentence will be added to Section 1.2.9: "The bottom of the slurry wall trench was keyed a minimum of 3 feet into the underlying silt unit, resulting in slurry wall depths ranging from 11 to 22 feet below grade."
9	Section 1.2.10 (page 1-9)	Add more detail to this section, including the material used, the method of construction, how deep the floodwall extends, and its depth relative to the organic silt layer. The Floodwall Record Drawing (3 of 3) (French & Parrello, 09/29/01) indicates that	Section 1.2.10 will be revised as follows: "The floodwall was constructed along the Passaic River on the northern site boundary to act as a

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		the bottom of tremie concrete between master piles has an elevation of -18.5 feet. It should be clarified that by the Passaic River, the floodwall extends through an organic silt layer that is thin or absent in places and into the deeper glaciofluvial sand layer.	structural retaining wall to support the surficial cap and to protect the Site from a 100-year flood (Figure 4). Additionally, the floodwall was created to function as a groundwater barrier along that property line. The floodwall is composed of steel master piles driven to 48 feet below mean sea level (approximately 60 feet below land side ground surface), with interior and exterior steel sheet piles driven to 22 feet below mean sea level (approximately 34 feet below land side ground surface), excavated to a depth of 18.5 feet below mean sea level and then filled by tremie pipe with concrete. Depths of the silt unit were consistent with soil borings installed in that section of the site, which indicate that the silt unit is thin and in some isolated areas absent along that section of the site." Section 1.2.12 will be revised to include the following text: "The original design of the groundwater withdrawal system (GWWS) specified the placement of four wells along the floodwall for the necessary hydraulic control of groundwater. Subsequently, a more conservative design, adding four additional extraction wells along the floodwall, was developed to build in redundancy and account for any design uncertainties. As a result, eight extraction wells (EW-1 through EW-8) were
10	Section 1.2.12 (pages 1-9 to 1-10)	This section should discuss the history of extraction well EW-5 – operational, then out of service, then fixed just recently. The current rate of groundwater withdrawal should also be provided.	

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			installed along the floodwall with a spacing of approximately 75 feet. EW-5 was removed from service shortly after start-up of the GWWS in 2002 due to malfunctions believed to be caused by the presence of fine sand. In December 2011, EW-5 was redeveloped using mechanical methods (bailing and brushing to remove accumulated deposits on the well screen and casing, followed by surging and jetting). During redevelopment, fine material continued to impact EW-5. Following redevelopment, EW-5 was retrofitted with a 3-inch stainless steel pre-packed well screen and riser. The well operated for a short time after these upgrades before it again began to malfunction and was taken out of service in 2014. In April 2016, additional upgrades were performed. They included the replacement of the well pump liquid end assembly, flow meter, and transducer. In addition, set points were adjusted to maximize pump efficiency and functionality. EW-5 has been in operation since the upgrades were installed and pumping at a rate of 150 to 200 gallons per day."
11	Section 2.1.3 (page 2-2)	See comment 6b above.	Section 2.1.3 will be revised as follows: "As discussed in Section 1.2.3.1, DNAPL was observed in 2009 in two extraction wells (EW-2 and EW-4)

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			screened in the fill unit above the slit confining unit. DNAPL, consisting of a high-viscosity material, was evacuated from the extraction well and was not observed in subsequent monitoring events."
12	Section 2.2.1 (page 2-3)	The last sentence of the second full paragraph starting with, "Moreover…" should be deleted.	The information provided in the sentence is relevant to topic of discussion in the sentence. The following sentence is suggested as a replacement: "Moreover, 1,3-dichlorbenzene and 1,4-dicholorbenzene were not produced as finished products nor used as raw materials during Diamond Shamrock operations."
13	Section 2.3 (page 2-4)	EPA's 5 year reviews and their determinations should be mentioned in this section.	Section 2.3 will be edited as follows: "Determination of overall protection of human health and the environment has been evaluated by EPA in the 5 Five-Year Reviews completed since the Remedy was implemented. In the Five-Year Reviews, EPA concluded that the current remedy protects human health and the environment from exposures to COCs contained within the properties at 80/120 Lister Avenue as long as exposure pathways continue to be addressed by engineering and institutional controls. Table (Table # TBD) provides the protectiveness

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			statement included in each of the Five-Year Review Reports."
14	Section 2.4 (page 2-4)	This section references Tables 1 through 3 of the 1985 FS, provided as Appendix B. These tables could not be found within Appendix B or elsewhere in the subject report. Tables 1 through 3, the ARARs for this project, should be provided in the body of the RER, and not relegated to an Appendix, depending on the length of the text.	Tables (Table #s TBD) of ARARs will be added to the RE Report.
15	Section 2.5 (page 2-5)	Contrary to the toxicity claim in this section, a reduction in toxicity has not been achieved, because the bulk of the hazardous materials are entombed in place, without treatment rendering them "less toxic."	Section 2.5 will be revised as follows: "Limited reduction in toxicity is accomplished through on-going natural processes, mainly natural degradation of COCs in soil and groundwater, and through removal of COCs from saturated soil and groundwater via the groundwater extraction system. The combination of these processes is reducing concentrations of COCs and therefore achieving some limited reduction in toxicity at the Site."
16	Section 3 (general)	Since the values determined in the PQL study are also used in the groundwater quality monitoring program, the PQLs should be set below the groundwater standards, where possible.	The PQLs proposed in the Remedy Evaluation and determined through the PQL study will be applied to the groundwater quality monitoring program. It is expected that the new PQLs will be below the groundwater standards for the vast majority of parameters. Section 3.1 (second sentence) will be revised as follows:

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			"…were less than the current effluent discharge limits. It is expected that said desktop study will result in PQLs which are lower than current groundwater standards for the majority of parameters." Section 3.4.3, Step 4 (closing paragraphs) will be revised as follows: "Compare the current PQL to the PQL_C. If the PQL_C is less than the current PQL, recommend PQL_C as the new effluent criteria and apply the PQL_C to the groundwater quality monitoring program. Upon USEPA approval, the proposed analytical methods and corresponding PQLs will be used for effluent and groundwater quality monitoring. In cases where an analyte's new PQL is lower than the applicable limit, the limit will be used to determine compliance."
17	Section 3 (page 3-2)	As part of the NJPDES DSW Permit Equivalent, all of the 2,3,7,8-substituted PCDDs/PCDFs should be included with TEFs calculated. Once updated PQLs are obtained through the proposed work, an update to the NJPDES DSW Permit Equivalent will be needed. This will be the appropriate time to include monitoring for both 2,3,7,8-TCDD and for TCDD-TEQ, the latter of which is representative of the combined toxicity of the 17 congeners comprising the 2,3,7,8-substituted	We recommend that 2,3,7,8-TCDD remain the parameter to be monitored in Site effluent. 2,3,7,8-TCDD is the only 2,3,7,8-substituted PCDD/PCDF that has been determined to be a Site COC per the Site ROD. Consequently, 2,3,7,8-TCDD has been the parameter used to determine compliance.

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		PCDDs/PCDFs, as determined through the PCDD/PCDF Toxic Equivalency (TEQ) Approach. Please refer to USEPA guidance for application of the TEQ approach to media containing PCDDs/PCDFs found at: http://www.epa.gov/sites/production/files/2013-09/documents/tefs-for-dioxin-epa-00-r-10-005-final.pdf https://semspub.epa.gov/work/11/174558.pdf	In addition, the referenced guidance document does not appear applicable to effluent discharge monitoring. It provides PCDD/PCDF TEFs and the method for calculating the PCDD/PCDF TEQ and states that it is applicable to risk assessment related uses.
18	Section 3.2 (page 3-5)	Fix the typo in the 3rd sentence. It should read: "The CLP's QA program…"	The sentence will be revised as suggested.
19	Section 3.3.2 Table 3 (pages 3-7 and 3-8)	Fix the typos in the 1st column of the table. It should say "4,4'-DDT" in the headings on both pages and "Analytical Method – Source of PQL" on page 3-7.	The text will be revised as suggested.
20	Section 3.3.8 (page 3-12)	Delete the extra "S" at the beginning of the section.	The "S" at the beginning of this section will be deleted.
21	Section 3.3.8 (page 3-12)	Please note: Recent Hexavalent chromium water data had associated PQLs of 5.5 ug/L from method 7199 and 10 ug/L from 7196A.	Comment noted. Hexavalent chromium by Method 7199 is included in the proposed PQL study.
22	Section 3.4.1 (pages 3-14 and 3-15)	Please clarify whether there would be a required minimum number of labs for the PQL study to proceed.	A minimum number of three laboratories will be required. The following text will be added to Section 3.4 in the first paragraph after the first sentence: "…, and hexavalent chromium will undergo a site/matrix-specific, multi-laboratory PQL study. A minimum of three laboratories are required to participate in the PQL study."

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23	Section 3.4.3 (pages 3-15 to 3-17)	The PQL study requires treated groundwater effluent samples to be fortified at a known, low concentration of each compound for which a PQL is to be determined. The following issues need to be addressed: a. If the compounds for which PQLs are to be determined are in the effluent, how will the calculation be adjusted? b. If the concentration of a compound for which a PQL is to be determined masks the concentration of the fortification solution, what will be the course of action? c. It is proposed that if a concentration for a compound for which a PQL is to be determined is found in a corresponding reagent water blank and as a result, the calculated MDL from the blanks is higher than the MDLs from the samples, the MDL value to be used to calculate the new PQL value in "Step 4" is from the blank, not the sample fortification. This procedure is questionable as one would be potentially generating a value more from a laboratory contamination issue than from a fortification of an actual sample which would be a better indication of those potential interferences that would affect the PQL. d. It is expected that any PQL generated should be less than those that currently exist.	a. and b. The first paragraph of Section 3.4.3 will be revised as follows: "Large volume samples will be collected from the treated groundwater effluent and submitted to the participating laboratories to be analyzed for the analytes of interest. The samples will be preserved in the field according to method recommendations and method-established holding times will be followed. If any compound for which a PQL is to be determined is in the effluent at or less than four times the study's predetermined spike concentration (see Section 3.4.2), the effluent sample will not be fortified with that compound. Replicate unfortified sample results will be used. If the concentration of a compound for which a PQL is to be determined is greater than four times the predetermined spike concentration, the predetermined spike concentration will be used as the PQL. If it is determined a fortified sample is appropriate for the PQL study, a minimum of seven replicate MS samples will be prepared and analyzed." c. The compounds proposed to be included in the PQL study: 4,4'-DDT, 2,4-DB, and hexavalent chromium, are prone to positive interferences. We wanted to allow for the possibility that laboratory contamination, or limitations within the methods, may exceed the fortified sample results. This study approach corresponds with

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			the EPA revision to the MDL procedure published in 40 CFR Part 136 and approved as part of the 2017 Methods Update Rule (MUR). d. Agreed. We also expect the new PQLs will be lower than the current PQLs. However, this cannot be determined until the study is completed.
24	Section 3.4.3 (pages 3-16 and 3-17)	For Step 4 in the calculation of the PQL, please clarify the rationale for using the 10X MDL.	The following will be added to Section 3.4.3, Step 4: "The rationale in using ten times the MDL is to achieve a site-specific PQL that can be reliably achieved not only during routine laboratory operating conditions at one laboratory, but across multiple laboratories, and over time across variable effluent conditions. This will allow for confidence in the usability of the data. In the EPA Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods (SW-846), the estimated quantitation limit (EQL) (or PQL) is defined as: "The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. The (PQL) is generally 5 to 10 times the MDL." Ten times the MDL for a site-specific multi-laboratory PQL is appropriate."

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25	Section 3.4.3 (page 3-17)	Once the PQL Study is complete, an update to the NJPDES DSW Permit Equivalent will be needed to reflect the new PQLs. Therefore, this will also be reflected in the monthly Discharge Monitoring Reports.	Comment noted. The following will be added to Section 3.4.3, Step 4, end of last paragraph: "An update to the NJPDES DSW Permit Equivalent will be completed to include the new PQLs, and the new PQLs will be reflected in the monthly Discharge Monitoring Reports."
26	Section 4 (page 4-1), Tables 4-1 through 4-6 and 6-1, Section 5.1.1 (page 5-2) and Section 6.1.1 (pages 6-2 to 6-3)	a. The No Further Action remedy should not be the current remedy with no extraction of the groundwater or upkeep of the remedy. Rather, it should be the current remedy as is with continuing operations and maintenance, since a goal of this review is to determine if any remedies now exist that could be more protective than the current in-place remedy. Revise all sections describing the No Further Action alternative including the screening against the 9 criteria. b. Generally, the remedial alternatives list seems too short. Other alternatives that could be developed and considered include: 1. Targeted Excavation (Cell A) and Modified Containment 2. Bioremediation 3. Incineration Note: Subtask 2.1 in the REWP called for identification of modifications and improvements to the existing remedy as a separate task from the development of alternative remedies, however, this does not seem to be included in this report. Since it is more appropriate to address this task as part of ongoing operations and maintenance (O&M), EPA will provide a	a. The sections and tables referencing the "No Further Action" alternative will be revised to consider the current remedy (i.e., cap and containment with continued groundwater extraction and treatment) as Alternative 1. b. Comment noted. Tierra will consider the following additional remedial options than those currently contained in the RE Report: - Bioremediation - On-Site Incineration - Off-site incineration will remain in this section as a treatment option for Alternative 2 and 3. Targeted excavation (limited excavation) included as Alternative 2 in the RE Report consisted of targeting areas surrounding EW-2, GCP 1-1, and GCP 2-1 where concentration of dioxin in soil is generally greater than in

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		separate set of comments related to O&M activities and will set up a separate meeting to address these comments.	surrounding soil. Cell A is the area where material with dioxin at concentration greater than 200 ppb was consolidated under the cap. Target excavation of Cell A with modified containment will be added to the remedial options considered in the Report. This additional option may be integrated in Alternative 2.
27	Section 5.1.2 (page 5-2)	This section should be expanded to clarify, to the extent it is known, the depth of the fill unit soils contaminated above standards, and the depth of the sands contaminated above standards, if the entire depth of the fill unit soils is contaminated above standards. Also, please clarify whether excavation of a portion of the fill unit soils to then be capped is worth consideration.	The following text will be added to this section: "Historical soil investigation and associated analytical data demonstrate select site COCs have been detected in the fill unit and at select locations in the upper layer of the silt unit at concentrations greater than applicable cleanup criteria. 2,3,7,8-TCDD has been detected at concentrations greater than 0.72 micrograms per kilogram (µg/kg) in more than 85% of the soil samples collected at the site. 2,3,7,8-TCDD is generally not detected in the upper layer of the silt unit at concentration greater than 0.72 µg/kg with the exception of a few select locations. Limited soil analytical data exists below the silt unit." Excavation of a portion of the fill unit would still require maintaining existing engineering and institutional controls and would only achieve a partial reduction in total mass of COCs present in soil and groundwater at the site. Excavation of a portion of the fill unit is considered in Alternative 2 of the RE Report and

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			modification to this option will be made in the RE Report based on comment 26.
28	Section 5.1.3 (page 5-3)	Additional information on the historical data for the soils should be provided in this section.	This section will be revised consistent with the edits proposed in response to comment 27.
29	Section 6.1.2.2 (page 6-4)	Clarify how the potential exposure pathway to COCs in groundwater would be eliminated through Alternative 2. Since the groundwater is already contaminated, there would still be a need for ongoing pump and treatment or some other treatment.	Agreed. Potential exposure pathway to COCs in groundwater under OU-1 would be partially addressed by removal of soils down to the silt unit. It is expected that residual groundwater contamination would remain following excavation. On this basis, there will be a need to maintain engineering controls within the footprint of the current containment area. Text from section 6.1.2.2 and other applicable sections will be revised as follows: "This alternative would comply with chemical-specific ARARs for soil, as the potential exposure pathway to COCs in soil would be eliminated. However, residual groundwater contamination is expected to remain following excavation which would require continued groundwater extraction and treatment. "
30	Short-Term Effectiveness and Overall	Worker health and safety should not be included in this evaluation, as the design phase should include the appropriate considerations to ensure worker health and safety during	Worker health and safety was included in accordance with the *USEPA Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*

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	Protection of Human Health and the Environment portions of Section 6.1 (pages 6-2 to 6-10) and 7.1 (pages 7-2 to 7-3), Table 6-1	implementation. Therefore, remove mention of worker considerations throughout the evaluation.	dated October 1988, which was one of the guidance documents followed in preparing the RE Report. Subsection 6.2.3.5 of the guidance, Short-Term Effectiveness, specifies assessment of the alternative with respect to effects on protection of workers during remedial actions including threats that may be posed to workers and the effectiveness and reliability of protective measures that would be taken. Worker health and safety, much like community safety, is a significant concern that we recommend maintaining in the evaluation in consideration of the high degree of complexity and material and equipment transport associated with some of the alternatives.
31	Section 7.1.5 (page 7-3)	Clarify where the 30 year estimate came from for the O&M needs.	The 30-year estimate was used as a means to discuss long-term versus short-term remedy. On this basis, 30 years will be replaced with "long-term". The first paragraph of section 7.1.5 will be revised as follows: "The current remedy would also be as effective at attaining short-term results, as this remedy has already been implemented, and long-term O&M of the current remedy would be required." The second paragraph will be revised as follows:

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			"Alternative 5 would also require long-term O&M. Under Alternative 4, the short-term risks from in-situ stabilization would increase compared to Alternative 5 due to the increased area of implementation, while long-term O&M would still be required."
32	Section 7.1.6 (page 7-4)	Clarify what some of the mitigation requirements could include regarding the demolition and removal activities. Also, were steps taken to attempt to identify disposal and incineration locations? If so, provide further information on that in this section.	Noted. A discussion of mitigation requirements, such as shoring, infrastructure integrity evaluation and reinforcements, dewatering, dust and emission controls, and buried structure management and handling will be added to section 7.1.6. Disposal and incineration locations were identified. These locations will be provided in Section 7.1.6.
33	Tables 4-1 to 4-6	Although several sections of text in Section 6, "Overall Protection of Human Health and the Environment" discuss potential exposure and safety risks for some of the alternatives, these are not included under the list of disadvantages in the tables for those alternatives. These risks should be added to the tables.	Tables 4-1 through 4-6 will be modified to include "potential exposure and safety risks" associated with each alternative as requested.
34	Table 4-2, Disadvantages	a. Shoring would be needed. However, through engineering and design work, a progressive excavation could be performed to safely address the pressures and forces on the flood wall and excavation sidewall. In addition, existing infrastructure may assist with maintaining favorable conditions during	a. Noted. A description of mitigation steps required to implement Alternatives 2 and 3 will be added to the RE Report. The discussion will include a high-level description of engineering controls that can be undertaken and will consider use of existing infrastructure.

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		construction and therefore could be retained, to the extent that it is useful and feasible, during site excavation. b. Disposal options for dioxin impacted wastes are limited, but not unavailable. At a minimum, technologies and facilities capable of treatment and disposal for dioxin contaminated soil, debris and groundwater treatment residuals should be identified. c. The potential lack of suitable backfill volume for the Lister Site is not necessarily an obstacle to the implementation of Remedial Alternative 2. Additional information is required. First, the approximate volume needed to re-establish pre-remedial grade should be calculated. Second, an evaluation should be presented on availability of backfill volumes through use of both clean fill and alternative fill materials that could be used for this site (NJDEP Fill Material Guidance for Site Remediation Program Sites, April 2015). d. Given current site elevations, not all phases of excavation work are expected to require continuous de-watering. Also, provisions for minimizing active excavation areas (to assist with maintaining safe shoring pressures) may result in more manageable volumes of water for storage, treatment and disposal. Pre-treatment in the existing Waste Water Treatment Plant (WWTP) is expected with transport and disposal (based on sampling results) to a public WWTP or the Passaic River. In addition, once estimates of expected wastewater volumes are derived, adaptions to the existing system can be considered to increase processing volumes.	b. Noted. A description of technologies and facilities capable of treatment and disposal of dioxin-contaminated soil, debris, and groundwater treatment residuals will be listed in the RE Report. Such technologies include incineration followed by land-based disposal and/or stabilization followed by land-based disposal. Such facilities include the CHES Deer Park Hazardous Waste Incinerator Facility, La Porte, Texas and the CHES Aragonite Hazardous Waste Incinerator Facility, Tooele County, Utah. c. Noted. A description of fill volume to establish desired grades will be provided and an evaluation of anticipated fill material availability will be prepared. It should be noted that a detailed evaluation of fill source is outside the scope of the RE Report and therefore a general description of the items requested will be provided. d. Noted. A more detailed discussion of anticipated dewatering activities will be provided with steps that can be implemented to minimize the volume of water handled during excavation phases. It should be noted that a detailed dewatering evaluation is outside the scope of the RE Report and therefore a general description of the items requested will be provided.

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35	Table 4-2, Conclusion	The conclusion underestimates the expected reduction in environmental exposures that would occur with site-wide excavation. For example, the text limits the benefits of Remedial Alternative 2 to: "…preventing exposure to surface soils and preventing mass transport of COCs in groundwater…" These are both true, however, site-wide excavation would remove all major contaminant sources and much residual contamination, so exposure to nearly all contaminated media, not just surface soils, would be prevented.	Table 4-2 conclusion text will be revised by removing "surface" in the sentence where "surface soil" is used. Additional edits to the conclusion of Table 4-2 and other tables in this section will be included based on comments 33 and 34 above. It is expected that removal of all major contaminant sources and much residual contamination would result in addressing most exposure to site COCs, however, would require implementation and maintenance of engineering controls to prevent direct contact with residual contamination and to prevent recontamination of groundwater as discussed in response to comment 29.
36	Table 4-3, Disadvantages	The same disadvantages are listed for Remedial Alternative 3, as for Remedial Alternative 2. However, Remedial Alternatives 2 and 3 are not the same. Far less contaminated material would be excavated from OU-1 under Remedial Alternative 3 than under Remedial Alternative 2, as it is anticipated that 50% or less of the contaminated materials contained in OU1 would be removed under Remedial Alternative 3. Therefore, Remedial Alternative 3 is expected to present a lower degree of difficulty to implement than Remedial Alternative 2 and it follows that the obstacles to its implementation would be of a lesser magnitude than those associated with Remedial Alternative 3.	Table 4-3 will be revised consistent with this comment by modifying text to differentiate the degree of complexity between Alternatives 2 and 3.

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37	Table 4-3, Effectiveness	For this and all alternative descriptions, it is unclear why exposure concerns are limited to "surface soils" in the remedial alternative screening. The term "surface soils" should be changed to "contaminated soils" and evaluated accordingly.	The requested edit will be completed.
38	Figures	Include an updated cross section figure showing accurate slurry and flood wall depths, monitoring wells and water levels	Cross sections will be added to the RE Report as requested. North-South and East-West cross sections (across the center of the site) will be prepared and referenced in the RE Report, as appropriate.